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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Applicant : Buettgen et al.
Appl. No. : 09/717,894
Filed : 11/21/00
Title : PROCESS FOR THE PRODUCTION OF DEACIDIFIED TRIGLYCERIDES

Grp./A.U. : 1651
Examiner : I. Marx

Docket No. : C 2109 PCT/US

CERTIFICATE OF MAILING

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Signature of certifier

Marlene Capreri
Typed or printed name of certifier

Commissioner for Patents
Washington, DC 20231

BRIEF ON APPEAL UNDER 37 C.F.R. 1.192

Sir:

REAL PARTY IN INTEREST

The real party in interest is Cognis Deutschland GmbH & Co. KG,
Henkelstrasse 67, 40589 Duesseldorf, Germany.

RELATED APPEALS AND INTERFERENCES

None.

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STATUS OF CLAIMS

Claims 1-10 are the subject of this appeal.

STATUS OF AMENDMENTS

No amendments were made after final rejection.

SUMMARY OF THE INVENTION

Briefly stated, the present invention is directed to a process for making deacidified fats and/or oils involving reacting a triglyceride with a lower alcohol, in the presence of a lipase catalyst to form a pre-esterification product (an ester), and then further reacting the pre-esterification product with additional alcohol to form a product having an acid value of from about 0.1 to 0.5. See page 2, line 28 to page 3, line 14.

ISSUES

Whether claims 1-10 are obvious under 35 U.S.C. § 103(a) over Gatfield et al. (US 5,753,473) taken with Lepper et al. (US 4,608,202).

GROUPING OF THE CLAIMS

The claims stand and fall together.

ARGUMENT

Neither of the references relied upon by the Examiner, either alone or in combination, contain the requisite teaching or suggestion to render the claimed invention *prima facie* obvious.

Initially, Appellant would like to note that it is extremely well settled that in order to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the

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knowledge generally available to one of ordinary skill in the art, to modify the references or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure [underline emphases added]. See, *Manual of Patent Examining Procedure*, Rev. 3, July 1997, § 2142, pages 2100-108. Appellant respectfully submits that neither Gatfield nor Lepper, alone or in combination, teach or suggest all of the claim limitations of the present invention and, as a result, fail to render the claimed invention prima facie obvious.

Appellant has argued that with respect to the Gatfield reference, it is directed to the preparation of a DDAE ester by **transesterification** of an ester of DDA with a lipase, in the presence of ethanol. It is extremely well known by those skilled in the art of organic chemistry that **transesterification** is different from **esterification**. More particularly, esterification is the process by which an ester is formed by reacting an **alcohol** with an **acid**. Transesterification, on the other hand, is the reaction between an **ester** and **another compound** with exchange of alkoxy or acyl groups to form a different ester. Thus, whereas esterification involves forming an ester, transesterification involves changing one ester to another ester. The difference, therefore, between the teaching of the Gatfield reference and that of the claimed invention is obvious, i.e., **transesterification** versus **esterification**.

In response thereto, the Examiner has contended, and continues to contend, that Appellant's basis for this argument is unclear since Gatfield discloses that the same substrate "coconut oil", is treated with the same type of alcohol and the same enzyme. See, Paper No. 13, page 2. However, after a careful and comprehensive review of the teachings of the Gatfield reference, the following points of differentiation become eminently clear:

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- (1) the substrate employed in Gatfield is a **Stillingia oil**, not coconut oil;
- (2) the Examiner has failed to satisfy her burden of proof in showing that Gatfield and/or Lepper teaches, suggests or motivates the use of an effective amount of lipase to form a pre-esterification product having an acid value of from about 0.5 to about 10, which is an element of the claimed invention;
- (3) the Examiner has failed to satisfy her burden of proof in showing that Gatfield and/or Lepper teaches, suggests or motivates the use of a further reaction step to be performed on the pre-esterification product whereby the final product has an acid value of from about 0.1 to about 0.5; and
- (4) that both the Gatfield and Lepper references are directed to **transesterification processes**, not the claimed esterification process, which might effect the motivation of one skilled in the art to wish to rely on, employ and combine the teachings of either reference.

The Gatfield reference, which is the primary reference, is clearly **ONLY** concerned with the **transesterification of Stillingia oil**. The present invention, on the other hand, has nothing whatsoever to do with the transesterification of Stillingia oil. Appellant submits that one of ordinary skill in the art, in an effort to arrive at Appellant's claimed invention, would **NOT** be motivated to rely upon any of the teachings of the Gatfield reference. However, what the Examiner would have one believe is that the routineer, after having read the Gatfield reference, which is the primary reference, said routineer would then be motivated to seek out the Lepper reference, which is also directed solely to a **transesterification process**, and then choose to employ its Gatfield's lipase catalyst in Lepper's process, thereby arriving at the claimed invention. Appellant respectfully disagrees with the Examiner's logic. There exists absolutely no teaching or suggestion in the Gatfield reference, which is the primary reference, which would motivate the routineer to seek out and combine its teachings with that of Lepper in order to somehow arrive at Appellant's claimed invention. It is well settled that an Examiner cannot establish

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obviousness through references describing various aspects of an Applicant's invention unless the Examiner also provides evidence of motivating force to compel a person skilled in the art to do what applicant has done. See, Ex parte Levengood, 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993). The Examiner's evidence of motivating force is not based on any teaching or suggestion contained in either of the prior art references, but rather on the Examiner's own speculation and assumption. The Examiner, apparently realizing the non-existence of concrete evidence of motivating force, attempts to rely on case law, the citation to which is conveniently omitted, whereby motivation can allegedly be based merely on the Examiner's logic and sound scientific reasoning. See Paper No. 13, page 3. Assuming, arguendo, that this case law does in fact exist, Appellant respectfully submits that the Examiner has not based her conclusion of obviousness on either logic and/or scientific reasoning but rather, as was noted above, speculation and assumption. This being the case, Appellant would like to note that That which is within the capabilities of one skilled in the art is not synonymous with obviousness. See, Ex parte Gerlach, 212 USPQ 471 (Bd. Pat. App. & Inter. 1980). Moreover, it has been held that, "The Patent Office ... may not, because it may **doubt** that the invention is patentable, resort to speculation, unfounded assumptions or hindsight to supply deficiencies in its factual basis." See, In re Warner, 154 USPQ 173, 178 (CCPA 1967).

The Lepper reference, as was noted above, is directed to a process for making fatty acid esters by catalytic **transesterification** which involves first forming a preliminary ester by reacting a fatty acid with an aliphatic alcohol, in the presence of an **acidic** catalyst, followed by the subsequent transesterification of the preliminary ester to form the final ester product. The Lepper reference, however, clearly differs from the claimed invention in its use of an acidic catalyst rather than the claimed enzymatic lipase catalyst. Nowhere within the four corners of the Lepper reference is it either taught or suggested to employ the claimed lipase catalyst rather than Lepper's acidic catalyst. Rather, the only catalyst advocated by the Lepper reference is an acidic catalyst. Moreover, Lepper is apparently

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so satisfied with the performance of acidic catalysts that it is willing to incorporate the use of an additional ingredient, i.e., an entraining liquid, which clearly adds to the cost of performing the process, just for the privilege of being able to use an acidic catalyst, as is evidenced by the statement, "*The entraining agent serves in particular as a liquid carrier for the acidic catalyst in the first stage (preliminary esterification).*" See, col. 5, line 6-8 of the Lepper reference.

In view of the above, it is clear that neither Gatfield nor Lepper, alone or in combination, teach or suggest the present invention. Neither reference teaches a process for making deacidified fats and/or oils involving reacting a triglyceride with a lower alcohol, in the presence of a lipase catalyst to form a pre-esterification product (an ester), and then further reacting the pre-esterification product with additional alcohol to form a product having an acid value of from about 0.1 to 0.5. Gatfield relates to **transesterifying** esters, which is clearly different from the claimed **esterification** process and Lepper relates to the formation of esters using **acidic** catalysts which are clearly different from the claimed **enzymatic** (lipase) catalysts.

The Examiner's attempt in trying to substitute Lepper's use of an acidic catalyst with Gatfield's use of a lipase catalyst, which is neither taught, suggested nor motivated in **either reference**, is impermissible for establishing prima facie obviousness in the absence of evidence of motivating force based on something other than the Examiner's speculation and assumption.

Finally, with respect to the Examiner's contention that while the references admittedly fail to teach or suggest the claimed parameters relating to substrate, alcohol and lipase concentration, these amount to nothing more than mere optimization, Appellant respectfully disagrees. It appears as though the Examiner, instead of providing evidence in the form of some teaching or suggestion as to why these parameters would be obvious to those of ordinary skill in the art, has instead based her conclusion of obviousness on an impermissible "obvious-to-try" rationale. This being the case, Appellant would like to note

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that it is well settled that where the prior art gives either no indication as to which parameters are critical or no direction as to which of many possible choices is likely to be successful, prima facie obviousness may not be based on an improper "obvious-to-try" rationale. See, In re O'Farrell, 7 USPQ2d 1673, 1681 (Fed. Cir. 1988). Clearly, **neither reference** provides any indication as to which parameters are critical and/or which possible choices may be successful. As a result, the claimed parameters are not rendered prima facie obvious by these two references.

SUMMARY

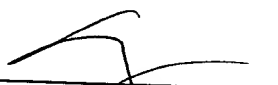
None of the references relied upon by the Examiner, either alone or in combination, contain the requisite teaching or suggestion to render the claimed invention prima facie obvious.

It is requested for the reasons given above, that the Board find for Appellant on all of the issues, and reverse the Examiner's Final Rejections.

Respectfully submitted,

Cognis Corporation
2500 Renaissance Blvd., St. 200
Gulph Mills, PA 19406

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Steven J. Trzaska
(Reg. No. 36,296)
Attorney for Applicant(s)
(610) 278-4929

Enc.: Appendix

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APPENDIX

CLAIMS ON APPEAL

1. A process for the production of deacidified fats and/or oils comprising the steps of:
 - (a) reacting a triglyceride having an acid value of up to about 60 and an excess of a lower alcohol having from 1 to 4 carbon atoms and an effective amount of a lipase to form a pre-esterification product having an acid value of from about 0.5 to about 10,
 - (b) optionally removing water and unreacted alcohol from the pre-esterification product,
 - (c) further reacting the pre-esterification product from step (a) or (b) with additional lower alcohol to form a post-esterification reaction product having an acid value of from about 0.1 to about 0.5.
2. The process of claim 1 wherein the triglyceride is a compound of the formula (I):
$$\begin{array}{c} \text{R}^3\text{CO-O} \\ | \\ \text{R}^1\text{CO-OCH}_2\text{CHCH}_2\text{OCOR}^2 \end{array} \quad (\text{I})$$
wherein each of R^1CO , R^2CO and R^3CO is a linear and/or branched, saturated and/or unsaturated acyl group having from 6 to 24 carbon atoms and having up to 3 double bonds.
3. The process of claim 1 wherein the triglyceride is a synthetic triglyceride, a natural triglyceride or a combination thereof.
4. The process of claim 1 wherein the triglyceride is coconut oil having an acid value of from about 15 to about 60.

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5. The process of claim 1 wherein the acid value of the triglyceride is increased to a maximum acid value of about 60 by the addition of a fatty acid.
6. The process of claim 1 wherein the lower alcohol is methanol.
7. The process of claim 1 wherein the amount of the lower alcohol is from about 1 to about 10% by weight of the triglyceride.
8. The process of claim 1 wherein the lipase is *Candida antarctica*.
9. The process of claim 1 wherein the amount of the lipase is from about 0.5 to about 5% by weight of the triglyceride.
10. The process of claim 1 wherein steps (a) and (c) are each carried out at a temperature of from about 10 to about 50°C.